Body of European Regulators for Electronic Communications

BEREC

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Summary Report on expert workshop on “How BEREC can best promote science-based EMF exposure limits recommended by experts”

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Contents

1. Introduction and aims of the workshop

BEREC organised a workshop on the 21st September 2021 on Electromagnetic Frequency (EMF) related issues. The workshop was entitled “How best to promote science-based EMF limits recommended by experts” and was addressed to heads, senior policy makers and experts of BERECs National Regulatory Authorities (NRAs).

The workshop served a two-fold purpose, namely, to give the audience an overview of current state of research by experts on EMF, and to present different case studies outlining how various countries were handling public EMF concerns and introducing cooperation amongst competent authorities so as to make their efforts more effective.

The workshop was divided in two major panels. In the first one, speakers of International Commission for Non-ionising Radiation Protection (ICNIRP), Institute of Electrical and Electronics Engineers / International Committee on Electrical Safety (IEEE/ICES), the French national frequency agency (ANFR) and Joint Research Centre (JRC) shared their current research and measures taken in their area of expertise. In the second panel, representatives of Malta (MCA), Netherlands (Radiocommunications agency), Norway (Nkom) and the United Kingdom (Ofcom) reported on successful measures adopted in their countries regarding EMF.

In addition to the two major panels, BEREC co-chairs and a representative of the European Commission provided information on other related activities in the field of EMF.

Opening of the workshop

The welcome address was given by Mr Michel van Bellinghen, BEREC Chair 2021.

He explained that the workshop was closed to experts from BEREC and other competent authority with the following aims to:

- Provide an overview of the current research situation in the field of EMF
- Show possible approaches for public information
- Share experiences on the current handling of EMF concerns in European Member States

He welcomed the invited speakers on the first panel; Prof Rodney Croft, Prof Jafar Keshvari, Mr Gilles Bregant, Dr. Chrysanthi Chountala and Dr. Gianmarco Baldini.

Subsequent to the welcoming speech, the co-chairs of BEREC’s Wireless Network Evolution (WNE) working group - Mr. Joe Lynch (Commission for Communications Regulation, Ireland) and Dr. Bo Andersson (Post and Telecom Authority, Sweden) - provided some remarks about various ongoing activities in preparation for the workshop. For example, they set out that BEREC and the RSPG had adopted a joint position on EMF issues in 2020, and they referred to some of the content in the joint statement. They set out that accurate public information on the new technology and its interplay with electromagnetic fields (EMF) is also key for the successful acceptance of 5G networks.

In addition, the co-chairs were pleased to announce that BEREC had recently published information summarising the different levels of cooperation among competent bodies in European countries and some national policies associated with monitoring, communicating and implementing EMF-related issues. For more information please refer to https://berec.europa.eu/eng/about_berec/tasks/EMF/ which lists some of the country-specific information gathered by BEREC.

In total, 125 participants[1] attended the workshop.

[1] 85 experts from 31 NRAs, 7 participants from EU Commission, 23 participants from 12 different OCAs, 3 participants from University Institutions, 3 participants from 2 international organizations (ITU ,ICNIRP) and 4 participants from the BEREC Office.

2. Part 1. Roles, responsibilities, communication activities of expert bodies – ICNIRP, IEEE/ICES, ANFR and JRC

2.1. Some key opening remarks

International Commission for Non-ionising radio protection ("ICNIRP")
Prof. Rodney Croft, chair of ICNIRP, presented why we are using RF guidelines and he highlighted the differences between 1998 and 2020 ICNIRP Guidelines for limiting Exposure to Electromagnetic Fields (100 kHz – 300 GHz) as follows

- ICNIRP Guidelines provide a set of rules to avoid unsafe RF exposures, without unduly limiting beneficial uses of EMF
- The effect of radio frequencies on human health varies greatly depending on a range of factors but there is no evidence of health effects below the ICNIRP exposure levels
- 2020 GLs remedy gaps that new technologies could potential exploit that could result in harm (brief duration, localized exposures over circa 30GHz, long duration, whole body exposures over 6GHz and ambiguity regarding the use of reference levels), and
- 2020 GLs also show an improvement, with respect to the 1998 Guidelines, in terms of rationale of protection, transparency and rules for multiple exposures.

IEEE International Committee on Electromagnetic Satefy ("IEEE/ICES")
Prof. Jafar Keshvari, chair of IEEE/ICES, presented an ITU report[2] delineating a regional assessment on EMF exposure limits and risk communication challenges in European countries. Prof Keshvari set out that

- Strong call / benefits of clear and proactive risk communication, and
- ICNIRP GLs (and relevant IEEE GLs) are conservative exposure limits.

The ITU report also contains recommendations for regulators / competent authorities in terms of proactive risk communication, shorter approval time / processes for efficient 5G deployment, and calls for regulators to engage with the standardisation process and, specifically, to follow up on equipment compliance and reflect their concerns and needs to the relevant committees.

Agency Nationalas des Frequencies, France ("ANFR")
Mr. Gilles Bregant, CEO of ANFR, informed the audience about the current EMF situation in France. He set out results of the ANFRs' long term measurement campaign and classified the findings of it. Interesting opening remarks included the following:

- National dialogue between agencies is important (a sort of unified messaging seemed to be useful to address queries from EMF sceptics)

[2] https://www.itu.int/en/ITU-D/Regional-Presence/Europe/Pages/Projects/EMF/About.aspx

- Actively sharing EMF activities with the public and being present in social media helps to deal with many EMF concerns
- Benefits of permanent monitoring with online access for citizens seems to influence the perception of telecommunications positively
- Installation of autonomous probes has proven successful for gathering data, and
- Launch of 5G has not significantly impacted measured exposure levels.

European Commission's Joint Research Centre ("JRC")

Dr. Chrysanthi Chountala and Dr. Gianmarco Baldini of the JRC presented the preliminary result of a literature and data analysis study about EMF. They also set out potential future developments and scope for further research. Interesting points included the following:

- Preliminary review of research and evidence is helpful given the passage of time
- Literature review findings include that there is no evidence of an increase in brain and other cancers over the years as the cellular networks evolved, and
- Notwithstanding the above, as the technology progresses further research should be conducted. In this regard, EC supports such as Horizon 2020 funding are available. This could help to drive more research in this field. The JRC also noted the possible use of its test facilities which includes an anechoic chamber / testing lab facility.

2.2. Other key points and messages from the open discussion

Some key messages from the expert presenters in the open discussion were as follows

- ANFR's example demonstrates the benefits of data driven regulation. ANFR had gathered measurements, and made them available to the public[3]
- Illustrating facts using charts, figures, and communications that are "lively" makes them more accessible to citizens. For example, ANFR understands how social media influencers make accessible content and video channels for messaging and uses similar techniques
- EMF misinformation issues seem to have faded out in France, but some anti 5G sentiment will likely remain notwithstanding best effort communications to address issues
- Rollout of c.12,000 base stations (from 1 Dec 2020 to 1 Sept 2021) in 3.5GHz band in France is an example of the success of ANFR's communication campaign. The general approach in France also stems from having national dialogue between agencies and using facts to address citizen concerns

[3] https://observatoiredesondes.fr/

- No unique solution exists – an important point given what role BEREC could play in assisting NRAs combat misinformation, and
- Harmonized limits are helpful when there are discussions about limits with citizens.

This open discussion served as a bridge into the second set of panel presentations by experts.

3. Part 2. Practical examples of cooperation between expert bodies to promote science based EMF limits – contributions from Malta, Netherlands, Norway and United Kingdom

The co-chairs introduced the expert panel; Ing. Clara Scerri Delia, Senior Technical Specialist, MCA (Malta), Ms. Lisette Kruit, Radio Communications Agency (Netherlands), Ms. Edith Helene Unander, Senior Engineer, Nkom (Norway); and Mr. Martin Fenton, Director of Spectrum Policy, Ofcom, (United Kingdom)

3.1. Some key points and messages

EMF is a complex and sensitive topic. As a result, not all countries approach the subject matter in the same way. Furthermore, responsibility varies from country to country. In some, the NRA holds most of the responsibility. In others, multiple stakeholders are involved, each with a different role. Notwithstanding this, three considerations, namely, cooperation, education and information sharing, appear to be fundamental to address EMF issues for concerned citizens. These three factors strongly emerged during the course of the panel presentations.

The following are some key messages from the expert presenters

- Build trust through transparent measurement and information campaigns
- Twin with universities whose expertise may assist in research or with simulations where measurements are not possible
- Segment information according to different target groups
- Provide online courses for professionals in local government
- Reactive communication works in many of the cases
- Often it is better to engage sparingly, and strategically, with anti-5G campaigners who may expect to want to amplify anti-5G sentiment by having the last word in conversations about this topic, and
- Educate people and explain, in simple terms, how new technology works. This helps to bust myths.

In addition to the above, it is also worth noting the ensuing points:

- One NRA has a formal Memorandum of Understanding with the other competent authority also responsible for EMF. Together, they convene with industry and service providers, on a yearly basis, to discuss citizen concerns. They also publish EMF-related leaflets, posters and reports with a harmonized signage

- One NRA has developed and promotes an online a radio frequency emission calculator (radiation calculator). The calculator helps users to better visualize the location of radio base stations and possible radio frequency levels in a specified surrounding area. By estimating the surrounding radiation levels, it therefore offers transparency and more peace of mind to the citizens

- One NRA works with other respected institutions in its market, including the Institute of Engineering and Technology (IET) to channel messages

- One NRA cautions against messages that place an emphasis on weighing the benefits of 5G over risks. Studies have shown that no health risks are present once EMF levels are kept below the ICNIRP limits. Consequently, there is no need to weigh benefits to counter anti-5G campaigns, and

- One NRA has powers to sanction misleading information about 5G in TV and radio broadcast, and this seems to be a useful deterrent to prevent misinformation on EMF being broadcast.

3.2. Contribution by staff of the European Commission

Dr. Christos Datsikas, Policy Officer, Spectrum Issues set out some key remarks as follows:

- The Scientific Committee on Health, Environmental and Emerging Risks (SCHEER)[4] is to provide an opinion on the need for a technical revision of the annexes to the Council Recommendation 1999/519/EC[5] and Directive 2013/35/EU[6] for the frequency range 100 kHz to 300 GHz in view of the latest scientific evidence available, in particular the ICNIRP guidelines updated in 2020. (this was mandated, June 2021)

- In the relevant mandate[7], SCHEER is tasked to update the SCENIHR Opinion of 2015 in the light of the latest scientific evidence with regard to frequencies between 1 Hz and 100 kHz. The first opinion will be delivered in 2022 and the second in 2023, respectively.

[4] scheer_q_023.pdf (europa.eu)
[5] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:31999H0519
[6] Directive 2013/35/EU of the European Parliament and of the Council of 26 June 2013 on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields) (20th individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC) and repealing Directive 2004/40/EC https://eur-lex.europa.eu/legal- content/EN/TXT/PDF/?uri=CELEX:32013L0035&from=FR
[7] https://ec.europa.eu/health/sites/default/files/scientific_committees/scheer/docs/scheer_q_023.pdf

- The BEREC-RSPG position-paper on spectrum-related EMF issues, published in September 2020, provides a solid input to the EU-level EMF strategy and sets it high on the political agenda. The position paper was also a key input for the *Connectivity Toolbox*.

- That the *"Connectivity Toolbox"*[8] of best practices agreed by Member States in line with *Commission Recommendation EU 2020/1307*[9], promotes continuous scientific research on EMF, targeted communication to inform and educate the European citizens on 5G implementation and informing the public about the compliance of radio base stations, including 5G base stations, with the applicable EMF safe levels.

- We invite and expect Member States that do not apply the EMF limits set out in the Council Recommendation to do so. The fragmentation of nationally applicable limits risks public trust in the Recommendation. It should also be noted that the consistent application of EMF limits is in line with Article 45 (2) (h) and 58 of the Code.

- The Commission, together with the Member States, develops further concepts to fight disinformation on internet and on social media, focusing the debate on scientific facts, to properly inform citizens on the state of protection against EMF exposure. In this vein, the Commission issued guidance[10] (in May 2021) on strengthening the *"EU Code of Practice on Disinformation".*

- In addition to policy actions, the Commission has recently launched a call for proposals to support research activities on exposure to and potential health effects of EMF[11], with an indicative budget of €30 million under the new Research and Innovation Framework Horizon Europe.

[8] https://digital-strategy.ec.europa.eu/en/news/connectivity-toolbox-member-states-agree-best-practices-boost-timely-deployment-5g-and-fibre
[9] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32020H1307
[10] https://digital-strategy.ec.europa.eu/en/library/guidance-strengthening-code-practice-disinformation
[11] HORIZON-HLTH-2021-ENVHLTH-02-0: Exposure to electromagnetic fields (EMF) and health

4. Conclusion

The workshop achieved its main objectives. It built a collective appreciation of the science-based research and communications activities by some competent bodies carried out to date with regards to EMF. Moreover, it presented NRAs and other competent authorities with instances of how they could promote EMF exposure limits backed up by this scientific research.

BEREC's publication of information encapsulating the different levels of cooperation between competent bodies in countries and the national policies related to monitoring, communicating and implementing EMF-related issues also establishes a good reference page for interested parties and citizens alike. BEREC will maintain refresh this information webpage to reflect the latest information on EMF in the various countries.

In light of the workshop, BEREC encourages NRAs to:

- keep abreast with any relevant EMF-related developments, particularly in the area of risk communication (such as publications by the ITU, IEEE/IEC, WHO, IARC and others)
- keep track of the efforts done by their counterparts in other countries with respect to EMF. Certain practices may easily be adapted and tailored to be deployed in multiple countries.

In conclusion, BEREC's work on EMF is a valuable support not only to NRAs but also to other competent authorities on EMF and Member States considering the Common Union Toolbox for Connectivity consisting of agreed best practices to boost timely deployment of 5G.[12]

[12] Connectivity Toolbox: Member States agree on best practices to boost timely deployment of 5G and fibre networks | Shaping Europe's digital future (europa.eu) see section 37, 38 and 39 therein.

Annex 1: Workshop Agenda

BEREC Workshop: How best to promote science based emf limits recommended by experts

Location:	Videoconference
Date & Time:	21 September 2021, 10.30-13.30 CEST

10.30 Workshop starts

10.30 – 10.40 **Opening remarks**

Mr. Michel Van Bellinghen, BEREC Chair 2021

[Amongst Berec's work aimed at improving connectivity is to identify barriers to rollout that prevent the next-generation wireless technology's deployment. Ongoing monitoring and means by which the facts should be communicated quickly and effectively to tackle misinformation, provide greater reassurance to citizens and may help rollout of 5G in some countries]

10.40 – 10:50 **BEREC activities on emf**

Co-chairs of Wireless Network Evolution Working Group

Dr. Bo Andersson, Chief economist, PTS and Mr. Joe Lynch, International unit analyst, ComReg,

[This introduction will briefly highlight the following

- *BEREC and the Radio Spectrum Policy Group adopted a joint statement on emf issues in 2020. The statement set out that, amongst other things, accurate public information on the new technology and its interplay with electromagnetic fields (EMF), is also key for the successful acceptance of 5G networks;*

- *BEREC's WNE experts have collected useful information about the different levels of cooperation seen between competent bodies in different countries. This is a useful starting point for BEREC.*

Essentially BEREC's experts identify the importance of cooperation between competent bodies and observe that there are different levels of cooperation in countries. To this end, we want to

- *enhance the exchange of relevant facts/information between BEREC / NRAs and the bodies that possess the necessary competences to speak expertly on this specialised topic*

- *hear different perspectives from other expert bodies about concerns citizens raise with them, and the facts they use to address such concerns*

[10.50 – 12.10] Panel I fireside chat format: Roles, responsibilities, communication activities of expert bodies

[The purpose of this session is to generate ideas for the Board of Regulators to reflect on, so that BEREC can continue to develop a relevant information repository to help NRAs develop appropriate communication strategies on emf.

In this session therefore, you will briefly hear about the background to ICNIRP's 2020 EMF exposure limits guidelines (the Guidelines). Having regard to this context, panellists from invited expert bodies will react to this opening. Panellists will provide views on some of latest relevant activities they are involved in including on communications, even if they do not promote the Guidelines directly. Essentially, expert bodies will provide perspectives on what, if anything, do the ICNIRP (2020) Guidelines mean in their work]

Moderators

Co-chairs

Panellists

- ***ICNIRP – 'the Guidelines on EMF exposure limits (2020)'***
  Prof. Rodney Croft, Chair ICNIRP
  [short scene setting presentation - technical progress has led to more radio bands being harnessed for various uses and there's an increased awareness of the use of RF in our everyday lives. For its part, ICNIRP updated its 1998 exposure limits for workers and the general public in 2020. What material differences are there between the Guidelines and how has scientific progress enabled and supported the updates]

- ***ITU / IEEE / ICES 'risk communication strategies European countries & rigor of making EMF measurements in practice'***
  Prof. Jafar Keshvari, *Chair of IEEE International Committee on Electromagnetic Safety*
  [exposure limits and EMF measurements walk hand in hand. 5G technology introduces a lot of complexities when it comes to measurement. How effective and realistic are the current techniques and what is the status of standardisation]

- **ANFR *'Can permanent monitoring with online access for citizens influence the perception of telecommunications?'***
  Gilles Bregant, CEO ANFR, RSPG chair (2013-2015)

[ANFR & EMF, national dialogue committee, national 5G roadmap and EMF, 5G back to facts, Field testing and next steps]

- ***Joint Research Centre – 'Electromagnetic emissions from mobile networks and potential effect on health - Preliminary study'***
  Dr. Chrysanthi Chountala and Dr. Gianmarco Baldini
  [Despite extensive research on this subject, many questions have remained unanswered due to methodological inconsistencies and lack of data. This report provides a preliminary analysis, including a literature survey of recent government and research activities into the health impact of RF EMF exposure.]

12.10-13.00 **Panel II presentations: Practical examples of cooperation between expert bodies to promote science based emf limits**

[The purpose of this panel is to hear about practical examples of cooperation between expert bodies in some countries so that NRAs can improve our collective understanding of different approaches.]

- ***Malta (Ing. Clara Scerri Delia, Senior Technical Specialist, MCA)***
- ***Netherlands (Lisette Kruit, Radio Communications Agency)***
- ***Norway (Edith Helene Unander, Senior Engineer, Nkom); and***
- ***United Kingdom (Martin Fenton, Director of Spectrum Policy, Ofcom)***

13.00-13.10 **Contribution by European Commission (DG CNECT)**

Dr. Christos Datsikas, Policy Officer, Spectrum Issues

[an approach to updating the technical annexes to Council Recommendation and Directive 2013/35/EU, in view of the ICNIRP 2020 guidelines, and other comments on the agreed best practices (37-39) of the Connectivity Toolbox.]

13.10-13.15 **Closing remarks and workshop wrap**

Co-chairs

13.30	**Webex meeting room closes**